

# Fall 2009 H1N1 Influenza Mortality Report

Acute and Communicable Disease Prevention Program  
Office of Disease Prevention & Epidemiology  
Oregon Public Health Division  
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## Background

Influenza-related deaths first became reportable to local health authorities on September 1<sup>st</sup>, 2009, although pediatric deaths have been nationally-notifiable to the Centers of Disease Control and Prevention (CDC) since 2004.

## Methods

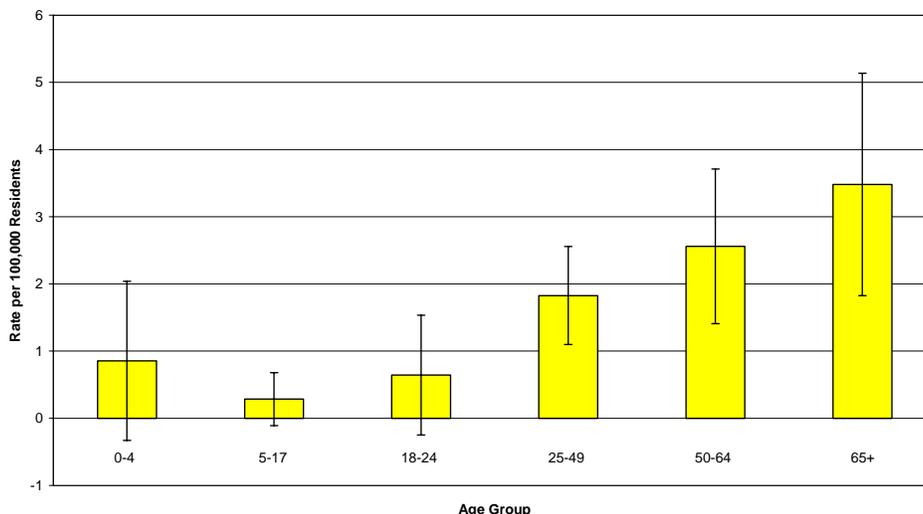
Lab-confirmed influenza deaths are defined as a resident of Oregon (2008 population: 3,791,075) who died with an illness clinically compatible with influenza, with a positive test for influenza. All deaths within 30 days of a positive lab test are considered influenza-related unless there is an alternative agreed-upon cause of death. Local health departments report cases that meet the influenza death case definition to the Oregon Public Health Division. Health record reviews are conducted by state and local health departments and information is collected on demographic characteristics, underlying conditions, and clinical manifestations such as bacterial co-infections.

## Surveillance Results

### *Descriptive Epidemiology*

From September 1, 2009 to January 29, 2010, 66 influenza-related deaths have been reported statewide, for a death rate of 1.74/100,000 persons. The highest death rate (3.5/100,000 persons) is among cases over the age of 65 years (Figure 1). The mean and median ages of influenza death cases is 52 and 51 years, respectively (range: 2-87). Over half of the deaths (58%) were male and 85% were white, 8% were Hispanic, 3% were Asian, 3% were Black, and 2% were American Indian/Alaskan Native (Appendix Table 1).

Figure 1: Influenza Deaths  
Rate and Confidence Intervals per 100,00 Oregon Residents  
September 1 to January 25, 2009



### Place of Death

Fifty-nine deaths (89%) occurred at a hospital (45% inpatient ward, 33% intensive care unit, 11% emergency department) while 7 (11%) died outside the hospital (9% decedent's residence, 2% hospice).

### Bacterial Co-infections

Forty (61%) cases were known to have been tested for bacterial pathogens. Of these cases, seventeen (43%) had positive sterile site or respiratory cultures. The most commonly identified infections were *Streptococcus pneumoniae* and methicillin-resistant *Staphylococcus aureus* (MRSA). Four patients were positive for *Streptococcus pneumoniae*, four patients were positive for methicillin-resistant *Staphylococcus aureus* (MRSA), and one patient was co-infected with MRSA and *Streptococcus pneumoniae*. Two patients had multiple bacterial organisms identified. (*Enterococcus faecalis*, *Pseudomonas aeruginosa*, Group B *Streptococcus*, *Candida albicans*, and coagulase negative *Staphylococcus*; *Morganella morganii*, group F beta *Streptococcus*, *Aspergillus fumigatus* and coagulase negative *Staphylococcus*).

### Vaccines

Seasonal and H1N1 influenza vaccine history was available for 21 (32%) and 39 (59%) of cases, respectively. Two patients were vaccinated against seasonal influenza and one patient was vaccinated against H1N1. The one patient vaccinated against H1N1 had onset 18 days after getting the vaccine and died 31 days after getting the vaccine.

**Table 1: Underlying conditions for pediatric and adult influenza deaths, September 1, 2009 to January 25, 2010.**

	Pediatric N=4	Adult N=62
<b>Any Underlying Condition</b>	<b>4 (100)</b>	<b>53(82)</b>
Lung Disease	2 (50)	28 (45)
Metabolic Disorder	0	26 (42)
Cardiac Disease	0	26 (42)
Obese	0	17 (27)
Asthma/ RAD	0	12 (19)
Immunosuppressive Therapy	0	8 (13)
Immunosuppressive Condition	0	5 (8)
Developmental Delay	4 (100)	3 (5)
Neuromuscular Disorder	3 (75)	2 (3)
<b>None</b>	<b>0</b>	<b>6 (10)</b>
<b>Unknown</b>	<b>0</b>	<b>3 (5)</b>

### Underlying Conditions

The median number of underlying conditions among the deceased children was 2.5. Four of four children (100%) were reported as having a neuro-developmental disorder, including Cerebral Palsy (2), Coffin Siris Syndrome (1), and global developmental delay (1).

Among adults, 58% had more than one underlying condition. Lung disease (45%) was most commonly reported followed by cardiac disease (42%) and metabolic disorders (42%) (Table 1). The most commonly reported lung disease was chronic

obstructive pulmonary disease (64% of all reported lung disease) and the most commonly reported metabolic disorder was diabetes (42% of all reported metabolic disorders).

## APPENDIX

Appendix Table 1. Demographic characteristics for Oregon influenza deaths, September 1, 2009 to January 25, 2010.

	Fall 2009 H1N1	Fall 2009 H1N1
	N (%)	Per 100,000
	N=66	N=66
<b>Gender</b>		
Male	38 (58)	2.0
Female	28 (42)	1.5
<b>Age*</b>		
0-4 years	2 (3)	0.9
5-17 years	2 (3)	0.3
18 -24 years	2 (3)	0.6
25-49 years	24 (36)	1.8
50-64 years	19 (29)	2.6
65-79 years	11 (17)	3.2
80+ years	6 (9)	4.2
<b>Race/Ethnicity**</b>		
White	56 (85)	1.6
Hispanic	5 (8)	1.2
Asian	2 (3)	1.5
Black	2 (3)	2.6
American Indian or Alaskan Native	1(2)	1.2
Native Hawaiian or other Pacific Islander	0	0
Unknown Race/Ethnicity	0	0

\*Age at time of hospital admission

\*\*Race and ethnicity denominator data from 2008 Census data